**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1–40. (Canceled)

41. (Currently Amended) An isolated nucleic acid molecule ~~comprising~~ consisting of a sequence of about the maximum number of nucleotides of a spacer region between:

the large sub-unit and the small sub-unit of rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

the RNA form thereof, wherein the nucleic acid molecule does not include tRNA genes, and further wherein the nucleic acid molecule is capable of detecting a species of the prokaryotic microorganism.

42. (Canceled).

43. (Currently Amended) An isolated nucleic acid molecule ~~comprising~~ consisting of an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein said ~~target~~ oligonucleotide does not include sequences of, or complementary to, tRNA genes.

44–47. (Canceled).

48. (Previously presented) An isolated nucleic acid molecule according to claim 43, wherein the molecule is a probe.

49. (Previously presented) An isolated nucleic acid molecule according to claim 43, wherein the molecule is a primer.

50. (Currently amended) A method for the detection of a ~~non-viral organisms~~ prokaryotic microorganism in a biological sample comprising:

contacting ~~the~~ nucleic acid sequences of said prokaryotic microorganism with at least one probe ~~comprising~~ consisting of an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

or the RNA form thereof;

at a sufficient temperature and hybridization solution concentration ~~to provide formation of hybrids between a probe and a complementary nucleic acid sequences~~ such that hybrids are formed between the at least one probe and complementary sequences in the nucleic acid sequences of the prokaryotic microorganism; and

inferring the presence of said ~~non-viral organism~~ prokaryotic microorganism by detecting formation of the hybrids.

51. (Currently Amended) The method of claim 50, further comprising amplifying the nucleic acid sequences of the biological sample to form an amplified product using at least one set of primers derived from a large sub-unit and a small sub-unit of the rRNA genes.

52–53. (Canceled)

54. (Currently Amended) The method according to claim 51, ~~wherein~~ further comprising labeling the amplified product ~~is labeled~~.

55. (Currently Amended) The method according to claim 51 wherein ~~the~~ primers of said at least one set of primers are ~~is~~ 5' biotinylated.

56. (Previously presented) The method according to claim 50, wherein the probe is immobilized on a solid support.

57. (Currently Amended) The method according to claim 51, further comprising amplifying the nucleic acid sequence of a biological sample to produce an amplified product using ~~a~~ primers of said at least one set of primers, wherein the primers do not include ~~that does not include~~ tRNA genes.

58–59. (Canceled).

60. (Currently Amended) The method according to claim 57, further comprising labeling of the amplified products ~~obtained from contacting the nucleic acid sequences~~.

61. (Currently Amended) The method according to claim 57, wherein ~~the~~ primers of said at least one set of primers are ~~is~~ 5' biotinylated.

62. (Previously presented) The method according to claim 57, further comprising immobilizing the probe on a solid support.

63. (Currently Amended) A method for the detection of at least one ~~non-viral organism~~ prokaryotic microorganism or for the simultaneous detection of several ~~non-viral organisms~~ prokaryotic microorganisms comprising:

using a target of an isolated nucleic acid to detect at least one prokaryotic microorganism by hybridization, said nucleic acid consisting of a sequence of about the maximum number of nucleotides of a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

or the RNA form thereof;

wherein said target does not include tRNA genes,

and further wherein the target is a probe and/or primer, at least one set of which is derived from a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism.

64–66. (Canceled).

67. (Currently amended) ~~The~~ A method for the detection of [[at]] a ~~non-viral organism~~ prokaryotic microorganism comprising:

amplifying the nucleic acid sequences of a biological sample using at least one set of primers, wherein ~~the~~ a primer of said at least one set of primers ~~comprises~~ consists of an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein the ~~target~~ oligonucleotide does not include sequences of, or complementary to tRNA genes;

sequencing the amplified nucleic acid sequences;

comparing the sequence(s) of the amplified nucleic acids with ~~other~~ a database of known nucleic acid sequences; and

inferring the presence of said ~~non-viral organism(s)~~ prokaryotic microorganism(s).

68–69. (Canceled).

70. (Currently Amended) A method for detecting a ~~non-viral organism~~ prokaryotic microorganism comprising:

amplifying ~~the~~ nucleic acid sequences of a biological sample to form amplified nucleic acid sequences, by using at least one set of primers derived from:

the large sub-unit and the small sub-unit respectively of the rRNA gene of said prokaryotic microorganism;

or from the large sub-unit and the 5S sub-unit respectively of the rRNA genes of said ~~non-viral organism(s)~~ prokaryotic microorganism;

sequencing the amplified nucleic acid sequences,

comparing the sequence(s) of the amplified nucleic acids with ~~other~~ a database of known nucleic acid sequences, and

inferring the presence of said ~~non-viral organism~~ prokaryotic microorganism from said comparison.

71–72. (Canceled).

73. (Withdrawn and Currently Amended) A method for obtaining a nucleic acid probe, wherein said nucleic acid probe comprises an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein said ~~target~~ oligonucleotide does not include sequences of, or complementary to tRNA genes, the method comprising:

comparing the nucleic acid sequence of the spacer region between the large sub-unit and the small sub-unit, or between the large sub-unit and the 5S sub-unit of the rRNA genes of the sought microorganism with the nucleic acid sequence of the spacer region between the large sub-

unit and the small sub-unit, or between the large sub-unit and the 5S sub-unit of the rRNA genes of the closest neighbors; and

selecting a sequence of about 15 to about 100 nucleotides of the spacer region between the large sub-unit and the small sub-unit, or between the large sub-unit and the 5S sub-unit of the rRNA genes of the sought microorganism which presents at least one mismatch with the spacer region between the large sub-unit and the small sub-unit, or between the large sub-unit and the 5S sub-unit of the rRNA genes of at least one of the closest neighbors.

74. (Withdrawn and Currently Amended) The method for obtaining a nucleic acid probe, wherein the nucleic acid probe comprises an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein said ~~target~~ oligonucleotide does not include sequences of, or complementary to tRNA genes; the method comprising

deleting, in the spacer region between the large sub-unit and the small sub-unit, or between the large sub-unit and the 5S sub-unit of the rRNA genes of the microorganism to be sought, the tRNA genes and possibly the signal sequences, to obtain a shortened spacer region, and

determining a specific nucleic acid sequence of about 15 to about 100 nucleotides, from the shortened spacer region, said sequence being able to hybridize specifically with the nucleic acids of the sought microorganism.

75. (Currently Amended) A kit for in vitro detection of a ~~non-viral organism~~ prokaryotic microorganism comprising:

at least one set of primers, wherein a primer of the said at least one set of primers ~~comprises~~ consists of an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein the ~~target~~ oligonucleotide does not include sequences of, or complementary to tRNA genes;

at least one nucleic acid probe, wherein the probe comprises an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism; or

or the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein said ~~target~~ oligonucleotide does not include sequences of, or complementary to tRNA genes;

a hybridization buffer, or components for producing the hybridization buffer, the hybridization buffer being effective for forming solution in which said nucleic acid probe(s) can hybridize with said nucleic acid sequences from said ~~non-viral organism(s)~~ prokaryotic microorganism(s) to form hybrids; and

reagents for detecting the hybrids formed between said nucleic acid probe(s) and said nucleic acid sequences from said ~~non-viral organism(s)~~ prokaryotic microorganism(s).

76. (Currently Amended) A kit for in vitro detection of a ~~non-viral organism~~ prokaryotic microorganism comprising:

at least one nucleic acid probe, wherein said probe comprises an oligonucleotide of about 15 to about 100 contiguous nucleotides from a spacer region between:

the large sub-unit and the small sub-unit of rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

the large sub-unit and the 5S sub-unit of the rRNA genes of a ~~non-viral organism~~ prokaryotic microorganism;

or the RNA form thereof;

said oligonucleotide being able to hybridize specifically to a target, wherein said ~~target~~ oligonucleotide does not include sequences of, or complementary to tRNA genes;

a hybridization buffer, or components for producing the hybridization buffer, the hybridization buffer being effective for forming solution in which said nucleic acid probe(s) can hybridize with said nucleic acid sequences from said ~~non-viral organism(s)~~ prokaryotic microorganism(s) to form hybrids; and

reagents for detecting the hybrids formed between said nucleic acid probe(s) and said nucleic acid sequences from said ~~non-viral organism(s)~~ prokaryotic microorganism(s).

77–78. (Canceled).

79. (Currently Amended) A kit according to claim 75, further comprising an agent for labeling the amplified products.

80. (Currently Amended) A kit according to claim 75, wherein the primers of said at least one set of primers are ~~is~~ 5' biotinylated.

81. (Currently Amended) A kit according to claim 75, further comprising a solid support for immobilizing the primers of said at least one set of primers ~~on a solid support~~.

82–85. (Canceled).

86. (Currently Amended) A kit according to claim 76, further comprising a solid support for immobilizing the probe ~~on a solid support~~.